

AMENDMENTS TO CLAIMS

- This listing of Claims shall replace all prior versions, and listings, of Claims in the application:

1. (Previously Presented): An alignment device comprising:
a holding plate having opposed upper and lower major surfaces;
means for positioning and fixedly mounting a stamper/imprinter on said upper major surface of said holding plate;
an alignment means for use in positionally aligning said stamper/imprinter by laterally moving said stamper/imprinter relative to a mounting plate;
said mounting plate having opposed upper and lower major surfaces, said upper major surface of said mounting plate facing said lower major surface of said holding plate; and
mounting means for positioning and fixedly mounting said upper major surface of said mounting plate in contact with said lower major surface of said holding plate, said mounting means including means for laterally moving said holding plate relative to said mounting plate, wherein said mounting plate does not include a central hub.

2. (Previously Presented): The device according to claim 1, wherein:
said mounting means for positioning and fixedly mounting a stamper/imprinter on said upper major surface of said holding plate includes vacuum means and mechanical means.

3. (Original): The device according to claim 2, wherein:
said vacuum means comprises a plurality of channels formed in said mounting plate.

4. (Previously Presented): The device according to claim 3, wherein:
each of said plurality of channels terminates as a suction means at said upper major surface of said mounting plate, said suction means adapted for fastening to a rear surface of a stamper/imprinter.

5. (Previously Presented): The device according to claim 2, wherein:
said mechanical means comprises a plurality of micrometer screw means or a plurality of spring-biased means adapted for urging against a peripheral edge of a stamper/imprinter.

6. (Previously Presented): The device according to claim 1, wherein:
said mounting means includes pressure varying means for selectively applying air pressure to said holding plate and mechanical means.

7. (Previously Presented): The device according to claim 6, wherein:
said pressure varying means comprises a plurality of channels formed in and extending to said upper major surface of said mounting plate.

8. (Previously Presented): The device according to claim 6, wherein:
said mechanical means comprises a plurality of micrometer screw means or a plurality of spring-biased means adapted for urging against a peripheral edge of said holding plate.

9. (Previously Presented): The device according to claim 1, wherein:
said holding plate and said mounting plate are annular disks and wherein an outer diameter of said mounting plate is greater than an outer diameter of said holding plate.

10. (Previously Presented): The device according to claim 9 further comprising:
an annular disk-shaped resilient pad atop said upper major surface of said holding plate, an outer diameter of said resilient pad being less than that of said holding plate.

11 - 12 (Cancelled)

13. (Withdrawn): A method for aligning a stamper/imprinter utilized in performing contact printing of a magnetic pattern in the surface of a magnetic or magneto-optical (MO) recording medium, comprising sequential steps of:

- (a) providing a device including:
 - (i) a holding plate having opposed first and second major surfaces;
 - (ii) means for positioning and fixedly mounting a stamper/imprinter on said first major surface of said holding plate;
 - (iii) a mounting plate having opposed first and second major surfaces, said first major surface of said mounting plate facing said second major surface of said holding plate;
 - (iv) mounting means for positioning and fixedly mounting said first major surface of said mounting plate in contact with said second major surface of said holding plate, said mounting means including means for laterally moving said holding plate relative to said mounting plate; and
 - (v) alignment means for use in laterally aligning said stamper/imprinter relative to the mounting plate;
- (b) providing a stamper/imprinter having a topographically patterned imprinting front surface and a rear surface;
- (c) positioning and fixedly mounting said rear surface of said stamper/imprinter to said first major surface of said holding plate, such that said topographically patterned imprinting front surface is outwardly facing;
- (d) placing said second major surface of said holding plate in contact with said first major surface of said mounting plate;
- (e) facilitating lateral movement of said holding plate relative to said mounting plate;
- (f) determining a positionally aligned position of said stamper/imprinter utilizing said alignment means;
- (g) laterally moving said holding plate with said stamper/imprinter mounted thereon to said aligned position; and
- (h) fixedly mounting said holding plate with said stamper/imprinter mounted thereon in said aligned position.

14. (Withdrawn): The method as in claim 13, comprising a further step of:

(j) installing said device with said mounted and aligned stamper/imprinter in a contact patterning apparatus and performing contact patterning of a magnetic or MO recording medium utilizing said apparatus.

15. (Withdrawn): The method as in claim 13, wherein:

step (a) comprises providing a device wherein said holding plate and said mounting plate are annular disks, the outer diameter of said mounting plate being greater than the outer diameter of said holding plate; and

step (b) comprises providing an annular disk-shaped stamper/imprinter having an outer diameter smaller than the outer diameters of said holding plate and said mounting plate.

16. (Withdrawn): The method as in claim 13, wherein:

step (b) comprises providing a stamper/imprinter having a topographically patterned imprinting surface comprising a plurality of spaced-apart recesses with a plurality of non-recessed areas therebetween, said topographical pattern corresponding to a servo pattern to be formed in said surface of said magnetic or MO recording medium.

17. (Withdrawn): The method as in claim 16, wherein:

step (b) comprises providing a stamper/imprinter having a topographically patterned imprinting surface comprised of at least one magnetic material having a high saturation magnetization $B_{sat} \geq \sim 0.5$ Tesla and a high permeability $\mu \geq \sim 5$, selected from the group consisting of Ni, NiFe, CoNiFe, CoSiFe, CoFe, and CoFeV.

18. (Withdrawn): The method as in claim 13, wherein:

step (c) comprises positioning and fixedly mounting said stamper/imprinter to said first major surface of said holding plate utilizing vacuum means and mechanical means.

19. (Withdrawn): The method as in claim 18, wherein:

step (c) comprises utilizing:

(i) vacuum means comprising a plurality of channels formed in said mounting plate and terminating as suction means at said first major surface, and

(ii) mechanical means comprising a plurality of micrometer screw means or spring-biased means adapted for urging against a peripheral edge of said stamper/imprinter, or mechanical means comprising at least one of clamps, brackets, flanges, and holding rings.

20. (Withdrawn): The method as in claim 13, wherein:

step (e) comprises facilitating lateral movement of said holding plate relative to said mounting plate by supplying a positive gas pressure to a plurality of channels formed in and extending to said first major surface of said mounting plate.

21. (Withdrawn): The method as in claim 13, wherein:

step (f) comprises determining said aligned position of said mounting plate with said stamper/imprinter mounted thereon by means of an optical alignment means.

22. (Withdrawn): The method as in claim 13, wherein:

step (h) comprises fixedly mounting mounting plate with said stamper/imprinter mounted thereon in said aligned position by:

(i) supplying a negative gas pressure to a plurality of channels formed in and extending to said first major surface of said mounting plate; and

(ii) utilizing a plurality of micrometer screw means or spring-biased means adapted for urging against a peripheral edge of said holding plate, or utilizing at least one of clamps, brackets, flanges, and holding rings.

23. (Previously Presented): A stamper alignment device comprising:

a holding plate having opposed upper and lower surfaces;

a mounting unit operable to mount the stamper on the upper surface of the holding plate;

a mounting plate, having opposed upper and lower surfaces, the mounting unit fixedly securing the upper surface of the mounting plate in contact with the lower surface of the holding plate; and

an alignment device for positionally aligning the stamper by laterally moving the holding plate relative to the mounting plate and by laterally moving the stamper relative to the holding plate,

wherein said mounting plate does not include a central hub.

24. (Previously Presented): The device according to claim 23, wherein the mounting plate further comprises:

a plurality of channels formed in the mounting plate supplying compressed air to secure the upper surface of the mounting plate and the lower surface of the holding plate together.

25. (Previously Presented): The device according to claim 24, wherein the plurality of channels further comprises:

a suction unit at the upper surface of the mounting plate for fastening to a rear surface of the stamper.

26. (Previously Presented): The device according to claim 23, wherein the mounting plate further comprises:

a plurality of micrometer screws for aligning the holding plate with the stamper.

27. (Previously Presented): The device according to claim 23, wherein the mounting plate further comprises:

at least one pair of springs for aligning the holding plate with the stamper.

28. (Previously Presented): The device according to claim 23, wherein the mounting plate further comprises at least one of a clamp, a bracket, a flange, and a holding ring for aligning the holding plate with the stamper.

29. (Previously Presented): The device according to claim 23, wherein the mounting plate further comprises:

a plurality of channels formed in the mounting plate supplying a vacuum to secure the upper surface of the mounting plate and the lower surface of the holding plate together.

30. (Previously Presented): The device according to claim 23, wherein the mounting plate further comprises:

a plurality of channels formed in the mounting plate supplying a vacuum and/or compressed air to secure the upper surface of the mounting plate and the lower surface of the holding plate together.

31. (Previously Presented): The device according to claim 23, wherein the holding plate and the mounting plate are annular disks, and wherein

an outer diameter of the mounting plate exceeds an outer diameter of the holding plate.

32. (Previously Presented): The device according to claim 23, wherein the alignment device comprises a laser beam device.

33. (Previously Presented): The device according to claim 23, wherein the stamper, the holding plate, and the mounting plate are annular disks, each having an inner diameter and an outer diameter.

34. (Previously Presented): The device according to claim 33, wherein the inner diameters of the stamper, the holding plate, and the mounting plate are substantially equal.

35. (Previously Presented): The device according to claim 33, wherein the outer diameter of the holding plate exceeds the outer diameter of the stamper.

36. (Currently Amended): The device according to claim 1 further comprising a magnetic field applying means for generating and applying a magnetic field to the stamper/imprinter to

change direction of magnetic domains of the recording medium, wherein a direction of the magnetic field applied to the stamper/imprinter is variable.

37. (Currently Amended): The device according to claim 23 further comprising a magnetic field applying means for generating and applying a magnetic field to the stamper to change direction of magnetic domains of the recording medium, wherein a direction of the magnetic field applied to the stamper is variable.